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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,705	09/30/2003	Anna Marie Aguinaldo	A-71431-3	8128

7590 08/23/2006

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Intellectual Property Department
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EXAMINER	
HISSONG, BRUCE D	

ART UNIT	PAPER NUMBER
1646	

DATE MAILED: 08/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/676,705	AGUINALDO ET AL.	
	Examiner	Art Unit	
	Bruce D. Hissong, Ph.D.	1646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) *6,8,9,13-26,29-34,36 and 37* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5, 7, 10-12, 27-28, and 35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *sequence comparisons 1 and 2*.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-29 and 35, and SEQ ID NO: 15, in the reply filed on 6/2/2006 is acknowledged.

2. Applicant's election with traverse of the specific modification/substitution F8E in the reply filed on 6/2/2006 is acknowledged. The traversal is on the ground(s) that the claimed mutations are presented in Markush format, and restriction among Markush group members is improper. The Applicants argue that the restriction requirement therefore be withdrawn, or alternatively, be held as an election of species.

These arguments have been fully considered and are not found persuasive. Each of the claimed mutations would result in a polypeptide with a different sequence, and different physical/biochemical characteristics. The MPEP, 806.04(b) states "Species may be either independent or related under the particular disclosure. Where species under a claimed genus are not connected in any of design, operation, or effect under the disclosure, the species are independent inventions." In the instant case, the claimed mutations produce polypeptides with a different sequence and therefore are not connected by design. Furthermore, it is noted that searching each of the claimed mutations, alone or in combination, represents an undue search burden because any search of a mutation(s) involves searching the mutation(s) itself, and the effect of the mutation(s) on the polypeptide.

The requirement is still deemed proper and is therefore made FINAL.

3. Claims 6, 8, 9, 13-26, 29-34, and 36-37 are therefore drawn to non-elected inventions, and are thus withdrawn. Therefore, claims 1-37 are currently pending, and claims 1-5, 7, 10-12, 27-28, and 35 are the subject of this office action.

Priority

The instant application, filed on 9/30/2003, claims benefit to provisional applications 60/489,725 (filed 7/24/2003), 60/477,246 (filed 6/10/2003), and 60/415,541 (filed 10/1/2002).

However, provisional application 60/415,541 does not specifically teach the F8E mutation in interferon (IFN)-β, or any other polypeptide, and thus does not provide support for the instant application. Accordingly, the earliest effective filing date of the instant application has been determined to be 6/10/2003.

Claim Objections

1. Claims 1-5 are objected to for reciting non-elected subject matter. Due to the election of SEQ ID NO: 15, the recitation of other SEQ ID NOs represents non-elected subject matter. Furthermore, claims 7 and 35 are objected to for depending from claim 1.

2. Claims 10-12 and 27-28 are objected to for reciting non-elected subject matter. Due to the election of the F8E modification, the recitation of other modifications represents non-elected subject matter.

3. Claim 12 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. In the instant case, due to the election of the F8E modification, both claim 11 and 12 read on a type I IFN variant comprising the F8E mutation.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-5, 7, 10-12, 27-28, and 35 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are drawn to variant IFN proteins that may already be present in nature, and as written, do not show the "hand of man" in the inventive process. This rejection may be obviated by amending the claims to recite an "*isolated* variant".

Claim Rejections - 35 USC § 112, first paragraph - enablement

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-5, 7, 10-12, 27-28, and 35 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a variant IFN-β polypeptide comprising the F8E modification, does not reasonably provide enablement for all other possible IFN variants. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The factors to be considered when determining if the disclosure satisfies the enablement requirement have been summarized as the quantity of experimentation necessary, the amount of direction or guidance presented, the presence or absence of working examples, the nature of the invention, the state of the prior art, the relative skill of those in the art, the predictability or unpredictability of the art, and the breath of claims. Ex Parte Forman, (230 USPQ 546 (Bd. Pat. App. & Int. 1986); In re Wands, 858 F.2d 731, 8 USPQ 2d 1400 (Fed. Cir. 1988).

Claims 1-5, 7, and 10 are rejected due to the excessive breadth of the claims, which read on any possible variant of a type I IFN protein that exhibits increased solubility relative to a wild-type IFN protein. The breadth of the claims is also broad because the claims read on type I IFN variants that exhibit increased solubility in any type of medium/solution (e.g. water, physiological saline, lipids, etc). The claims are further drawn to a variant that retains at least one biological activity, exhibits reduced immunogenecity, and is incapable of dimer formation. Although the examples of the specification provide guidance for creating variant IFN polypeptides, there are no specific examples of any IFN-β polypeptide, or any other IFN polypeptide, that meets these claim limitations. Furthermore, claims 1-5 and 7 are excessively broad because they are directed to polypeptides that are "variants" of a type I IFN polypeptide, or differ from a naturally occurring IFN polypeptide by at least on substitution of a solvent-exposed residue (claim 3), or are "derived" from IFN-β, and as such, could read on substitution of all or most of the amino acid residues of a type I IFN polypeptide so long as at least one solvent-exposed residue is substituted. The specification does not provide guidance or

examples of any IFN polypeptide "variant" that is "derived" from IFN-β, other than the IFN-β polypeptides of the examples, and as stated above, does not show any polypeptide that retains at least one biological activity, exhibits reduced immunogenicity, and is incapable of dimer formation. A person of ordinary skill in the art would not be able to predict which amino acids, whether solvent-exposed/hydrophobic or otherwise could be substituted with any other amino acid and produce a variant polypeptide, or any polypeptide "derived" from IFN-β, with increased solubility. It is known in the art that even single amino acid changes or differences in the amino acid sequence of a protein can have dramatic effects on the protein's function. As an example of the unpredictable effects of mutations on protein function, Mickel *et al* (Med. Clin. North Am., 2000, Vol. 84(3), p. 597-607) teaches that cystic fibrosis is an autosomal recessive disorder caused by abnormal function of a chloride channel, referred to as the cystic fibrosis transmembrane conductance regulator (CFTR – p. 597). Several mutations can cause cystic fibrosis, including the G551D mutation. In this mutation, a glycine replaces the aspartic acid at position 551, giving rise to the cystic fibrosis phenotype. In the most common cystic fibrosis mutation, Δ-F508, a single phenylalanine is deleted at position 508, giving rise to the cystic fibrosis phenotype. Thus, even the substitution or deletion of a single amino acid can have dramatic and *unpredictable* effects on the function of the protein.

Therefore, without adequate guidance from the specification, one of ordinary skill in the art would require further, undue experimentation to produce an IFN polypeptide variant that is commensurate in scope with the claims of the instant invention. This is the case for variant IFN polypeptides comprising modifications at any base, as in claim 1, and also for IFN-β variants comprised of the specific modification sites recited in claim 10. Although claim 10 recites specific modification sites, a skilled artisan would still require further, undue experimentation to determine the effects of replacing the amino acids at the claimed positions with any of the recited amino acids. Finally, claims 11-12, 27-28, and 35 are rejected for depending from rejected base claims.

In summary, due to the excessive breadth of the claims, which read variant IFN polypeptides comprising a modification(s) at all possible amino acid positions, the lack of guidance and examples in the specification showing any IFN polypeptide variant, or any IFN polypeptide "derived" from IFN-β, or with unlimited modifications, that would produce a polypeptide that meets the limitations of the claims, and the unpredictability inherent in the art regarding the effects of modifying all possible amino acids residues of an IFN polypeptide, a

person of ordinary skill in the art would require further, undue experimentation to create a variant IFN polypeptide, other than a polypeptide comprising a F8E mutation of SEQ ID NO: 15, that is commensurate in scope with the claims of the instant invention.

Claim Rejections - 35 USC § 112, first paragraph – written description

Claims 1-5, 7, 10-12, 27-28, and 35 are rejected under 35 U.S.C. 112, first paragraph, containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1-5, 7, and 10 are drawn to variant IFN polypeptides comprising *at least* one modification, wherein the variant polypeptide exhibits improved solubility relative to a wild-type IFN, retains at least one biological activity, differs from a naturally occurring IFN by at least one substitution of a solvent-exposed, hydrophobic residue, is incapable of dimer formation, and has reduced immunogenicity compared to a wild-type IFN. The claims do not require the variant IFN proteins of the instant invention to have any biological activity other that to retain at least one biological activity selected from immunomodulatory, antiviral, or antineoplastic activities, nor any particular structure other than comprising *at least* one modification/substitution at a solvent-exposed, hydrophobic residue. As stated in the preceding enablement rejection, the IFN variants or derivatives can be an IFN polypeptide substituted at any or all amino acid residues. The specification does not provide guidance or examples of any specific polypeptide, other than the IFN-β polypeptide of SEQ ID NO: 15 comprising a F8E substitution, that meets these claim limitations, and therefore the specification has not adequately described the genus of polypeptides that meet these limitations.

To provide adequate written description and evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered include disclosure of complete or partial structure, physical and/or chemical properties, functional characteristics, structure/function correlation, methods of making the claimed product, or any combination thereof. In this case, the only factor present in the claims is a requirement that the variant IFN protein must retain at least one biological activity and comprise *at least* one modification of a solvent-exposed hydrophobic residue, or be otherwise "derived" from the IFN-β polypeptide of SEQ ID NO: 15. There is no identification of

any particular portion of any IFN variant protein that must be conserved in order to maintain function. Accordingly, in the absence of sufficient distinguishing characteristics, the specification does not provide adequate written description of the claimed genus.

Claim Rejections - 35 USC § 112, second paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The metes and bounds of the term "incapable" are not defined by the claim, as there are known methods for artificially inducing polypeptides to form dimers (e.g. proteins dimerized by binding of an antibody). The Examiner suggest amending the claim to read, **as an example and without adding new matter**, "wherein said variant interferon does not naturally form dimers", or "wherein said variant interferon does not form dimers *in vivo*."

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent..
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-5, 27, and 35 are rejected under 35 U.S.C. 102(a) as being anticipated by Whitty *et al* (US 2002/0155547A1). The claims of the instant invention are drawn to a variant IFN protein that exhibits improved solubility relative to a wild-type IFN protein, maintains at least one biological activity, is incapable of dimer formation, exhibits reduced immonogenicity, and differs from a naturally occurring IFN by at least one substitution of a solvent-exposed hydrophobic residue. Whitty *et al* teach variants of IFN proteins, including IFN-β, wherein at

least one solvent-exposed hydrophobic amino acid residue is replaced by another amino acid residue (see paragraph 0092). Specifically, Table 1 discloses an IFN-β polypeptide in which the phenylalanine at position 8 is replaced with an alanine. Although Whitty *et al* does not specifically disclose the IFN-β variants as having improved solubility, reduced immuogenicity, maintaining at least one biological activity, or being incapable of dimer formation, it would be expected, in the absence of evidence to the contrary, that the IFN-β polypeptide disclosed by Whitty *et al* in Table 1 would inherently possess these features due to the replacement of the solvent-exposed phenylalanine at position 8. Because the USPTO does not have the facilities for testing the properties of the disclosed IFN-β variant of Whitty *et al*, the burden is on the applicant to show a novel and unobvious difference between the claimed IFN variant and that of the prior art. See In re Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and Ex parte Gray, 10 USPQ 2d 1922 1923 (PTO Bd. Pat. App. & Int.). Therefore, the IFN-β variant disclosed by Whitty *et al* meets the limitations of claims 1-5 and 27 of the instant application. Furthermore, Whitty *et al* teaches "therapeutic compositions" of IFN variants (paragraph 0044), with said compositions comprising the IFN polypeptides and other physiologically compatible ingredients. Because "physiologically compatible ingredients" would encompass pharmaceutical carriers, Whitty *et al* also meets the limitations of claim 35 of the instant application.

2. Claims 1-5, 7, 10-12, 27-28, and 35 are rejected under 35 U.S.C. 102(a) as being anticipated by Pedersen *et al* (US 6,531,122). The subject matter of the claims of the instant invention is discussed *supra*. The claims are further drawn to an IFN variant derived from the sequence of SEQ ID NO: 15, wherein said variant results from replacing the phenylalanine at position 8 with another amino acid, specifically glutamic acid. Pedersen *et al* teaches IFN-β variants produced for the purpose of conjugation to various polymers. Specifically, Pedersen teaches replacement of various amino acids, including the phenylalanine at position 8 (F8), with other amino acids such as lysine (column 14, line 54 – column 15, line 20) or glutamic acid (column 17, line 58 – column 18, line 38). Thus, Pedersen *et al* discloses an IFN-β variant with an F8E substitution. Pedersen *et al* also teaches that the "parent" IFN-β has the sequence of SEQ ID NO: 2, which is 100% identical to the polypeptide of SEQ ID NO: 15 of the instant application (see sequence comparison 1, and column 9, lines 50-56). In additional, Pedersen *et al* discloses IFN-β molecules with decreased immunogenicity, and retaining biological activity (column 13, lines 16-38). Furthermore, even if Pedersen *et al* did not specifically teach reduced

immunogenicity and maintenance of biological function, it would be expected, in the absence of evidence to the contrary, that the IFN-β variants comprising the F8E substitution would inherently exhibit improved solubility relative to a wild-type IFN-β, maintain at least one biological activity, be incapable of dimer formation, and exhibit reduced immunogenicity compared to a wild-type IFN-β polypeptide because the IFN-β F8E polypeptide taught by Pedersen *et al* is identical to the F8E IFN-β polypeptide of the instant invention. Because the USPTO does not have the facilities for testing the properties of the disclosed IFN-β variant of Pedersen *et al*, the burden is on the applicant to show a novel and unobvious difference between the claimed IFN variant and that of the prior art. See In re Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and Ex parte Gray, 10 USPQ 2d 1922 1923 (PTO Bd. Pat. App. & Int.).

Therefore, by teaching IFN-β variants derived from a sequence that is 100% identical to that of SEQ ID NO: 15, wherein the variants are characterized by replacement of F8 amino acid with a glutamic acid residue, Pedersen *et al* teaches an IFN-β F8E variant, and therefore meets the limitations of claims 1-5, 7, 10-12, and 27-28 of the instant application. Furthermore, Pedersen et al also discloses a variety of pharmaceutical compositions for administering IFN-β polypeptides and conjugates (column 38, line 47 – column 44, line 20), thus meeting the limitations of claim 35 of the instant application.

3. Claims 1-5, 7, 10-12, 27-28, and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Gantier *et al* (US 2004/0132977A1). The claims of the instant invention are drawn to variant IFN polypeptides, and with the election of SEQ ID NO: 15 and the F8E modification, are specifically drawn to a variant IFN-β polypeptide comprising a F8E modification. Claim 35 is further drawn to a pharmaceutical composition comprising a variant IFN protein and a pharmaceutically acceptable carrier. Gantier *et al* discloses a polypeptide, SEQ ID NO: 1122, that is 100% identical to the polypeptide of SEQ ID NO: 15 with a glutamic acid residue substituted for the phenylalanine at position 8 (see sequence comparison 2). Thus, by teaching an IFN-β polypeptide with a F8E modification/substitution, Gantier *et al* meets the limitations of claims 7, 10-12, and 27-28 of the instant application. Gantier *et al* also teaches pharmaceutical compositions of various modified polypeptides (see paragraph 0017), and thus also meets the limitations of claim 35. Although Gantier *et al* does not specifically teach an IFN variant that exhibits improved solubility relative to a wild-type IFN, retains at least one biological

activity, is incapable of dimer formation, differs from a naturally occurring IFN by at least one substitution of a solvent-exposed hydrophobic residue, or has reduced immunogenicity compared to a wild-type IFN, the F8E IFN-β polypeptide disclosed by Gantier *et al* would be expected to inherently meet these claim limitations because it is identical to the F8E IFN-β polypeptide of the instant application, and thus anticipates claims 1-5 of the instant application.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-5, 7, 10-12, 27-28, and 35 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-15 of copending Application No. 10/820,467. Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications claim variant IFN polypeptides comprising modification at various residues, including substitution of a glutamic acid residue at position 8 of wild-type IFN-β. The claims of both applications also recite variant IFN proteins that exhibit increased solubility relative to a wild-type protein, and also exhibit reduced immunogenicity. Although the claims of the '467 application do not specifically recite variant IFN polypeptides that retain at least one biological activity, differ from naturally occurring IFN by at least one substitution of a solvent-exposed hydrophobic residue, or are incapable of dimer formation, the claimed IFN variants of the '467 application would be expected to

inherently possess these qualities. Therefore, it would be obvious to one of ordinary skill in the art to practice the invention of the instant application by following the claims and teachings of the '467 application. Finally, although the claims of the '467 application do not recite a pharmaceutical composition comprised of a variant IFN protein, it would be obvious to one of ordinary skill in the art to place any variant IFN polypeptide in a composition with a pharmaceutically acceptable carrier, and therefore claim 35 of the instant application is also obvious in view of the claims of the '467 application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

No claim is allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bruce D. Hissong, Ph.D., whose telephone number is (571) 272-3324. The examiner can normally be reached M-F from 8:30am - 5:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Nickol, Ph.D., can be reached at (571) 272-0835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BDH
Art Unit 1646

ROBERT S. LANDSMAN, PH.D.
PRIMARY EXAMINER

SEQUENCE COMPARISON 1

RESULT 3
US-09-648-569A-2
; Sequence 2, Application US/09648569A
; Patent No. 6531122
; GENERAL INFORMATION:
; APPLICANT: Pedersen, A.H., et al.
; APPLICANT: Maxygen ApS
; TITLE OF INVENTION: Interferon-Beta Variants and Conjugates
; FILE REFERENCE: 0202us810
; CURRENT APPLICATION NUMBER: US/09/648,569A
; CURRENT FILING DATE: 2000-08-25
; NUMBER OF SEQ ID NOS: 45
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 2
; LENGTH: 166
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-648-569A-2

Query Match 100.0%; Score 874; DB 2; Length 166;
Best Local Similarity 100.0%; Pred. No. 1.1e-84;
Matches 166; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Qy          1 MSYNLLGFLQRSSNFQCQKLLWQLNGRLEYCLKDRMNFDIPEEIKQLQQFQKEDAALTIY 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MSYNLLGFLQRSSNFQCQKLLWQLNGRLEYCLKDRMNFDIPEEIKQLQQFQKEDAALTIY 60

Qy         61 EMLQNIFAIFRQDSSSTGWNETIVENLLANVYHQINHLKTVLEEKLEKEDFTRGKLMSSL 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 EMLQNIFAIFRQDSSSTGWNETIVENLLANVYHQINHLKTVLEEKLEKEDFTRGKLMSSL 120

Qy        121 HLKRYYGRILHYLKAKEYSHCAWTIVRVEILRNFYFINRLTGYLRN 166
              ||||||||||||||||||||||||||||||||||||||||||||||
Db        121 HLKRYYGRILHYLKAKEYSHCAWTIVRVEILRNFYFINRLTGYLRN 166
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SEQUENCE COMPARISON 2

RESULT 1
US-10-658-834A-1122
; Sequence 1122, Application US/10658834A
; Publication No. US20040132977A1
; GENERAL INFORMATION:
; APPLICANT: Gantier, Rene
; APPLICANT: Guyon, Thierry
; APPLICANT: Drittanti, Lila
; APPLICANT: Vega, Manuel
; TITLE OF INVENTION: Rational Evolution of Cytokines for Higher Stability, Encoding Nucleic
; TITLE OF INVENTION: Acid
; TITLE OF INVENTION: Molecules and Related Applications
; FILE REFERENCE: 38751-922
; CURRENT APPLICATION NUMBER: US/10/658,834A
; CURRENT FILING DATE: 2003-09-08
; PRIOR APPLICATION NUMBER: 60/457,135
; PRIOR FILING DATE: 2003-03-21
; PRIOR APPLICATION NUMBER: 60/409,898
; PRIOR FILING DATE: 2002-09-09
; NUMBER OF SEQ ID NOS: 1306
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 1122
; LENGTH: 166
; TYPE: PRT
; ORGANISM: Homo sapiens
US-10-658-834A-1122

Query Match 100.0%; Score 873; DB 4; Length 166;
Best Local Similarity 100.0%; Pred. No. 5.1e-75;
Matches 166; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Qy          1 MSYNLLGELQRSSNFQCQKLLWQLNGRLEYCLKDRMNFDIPEEIKQLQQFQKEDAALTIY 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MSYNLLGELQRSSNFQCQKLLWQLNGRLEYCLKDRMNFDIPEEIKQLQQFQKEDAALTIY 60

Qy         61 EMLQNIFAIFRQDSSSTGWNETIVENLLANVYHQINHLKTVLEEKLEKEDFTRGKLMSSL 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 EMLQNIFAIFRQDSSSTGWNETIVENLLANVYHQINHLKTVLEEKLEKEDFTRGKLMSSL 120

Qy        121 HLKRYYGRILHYLKAKEYSHCAWTIVRVEILRNFYFINRLTGYLRN 166
              ||||||||||||||||||||||||||||||||||||||||||||||
Db        121 HLKRYYGRILHYLKAKEYSHCAWTIVRVEILRNFYFINRLTGYLRN 166
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